

## CLAIMS

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[Claim(s)]

[Claim 1]An activated carbon filter which has a cartridge which carries out crossing arrangement in the middle of a container provided with a gas inlet and a gas outlet characterized by comprising the following, and a gas passageway from this entrance to an exit, and stores activated carbon inside.

A bottom plate with which said cartridge provides an opening for gas inhalation, and an opening for gas discharge.

A suction duct which allots this opening for gas inhalation to the undersurface, establishes an opening for gas branching to a flank, and provides an opening for gas passage in the upper surface.

Gas stream entrance into a room which is opened for free passage to said opening for gas branching, and is provided in the undersurface of an activated carbon stowage.

A discharge duct which allot said opening for gas discharge to the undersurface, and an opening for raw gas passage is provided in the upper surface, and establishes an opening for raw gas unification to a flank.

An inhalation chamber which it has a lid which seals the upper surface whole region, and said container is provided with said gas inlet, and is open for free passage to said opening for gas inhalation.

A discharge chamber which is provided with said gas outlet and is open for free passage to said opening for gas discharge.

[Claim 2]Said cartridges are two or more steps of cartridges which said opening for gas inhalation of the upper row is joined to said opening for gas passage of the lower berth, and join said opening for gas discharge of the upper row to said opening for raw gas passage of the lower berth, The activated carbon filter according to claim 1, wherein said lid seals the upper surface whole region of topmost cartridge.

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[Translation done.]

JAPANESE

[JP,2001-129345,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION TECHNICAL PROBLEM MEANS DESCRIPTION OF DRAWINGS DRAWINGS

[Translation done.]

#### \* NOTICES \*

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

#### DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the activated carbon filter which removes an adsorbing component out of gas by the activated carbon stored to a cartridge.

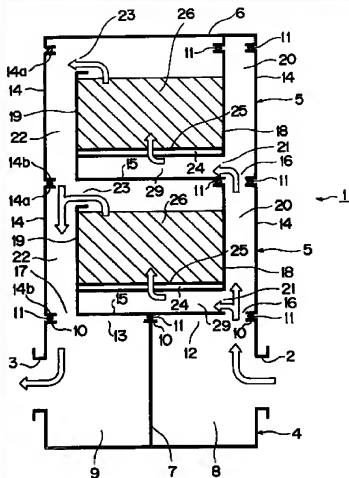
[0002]

[Description of the Prior Art] The activated carbon filter used in a human excreta treatment plant, sewage treatment equipment or a waste disposal plant, etc., Crossing arrangement of the cartridge which stored activated carbon in the middle of the gas passageway from an entrance to an exit is carried out, the odor gas which is a processing object is passed in activated carbon using a deodorizing fan, physical adsorption of the malodorous substance is carried out to activated carbon, and it deodorizes, and has composition discharged as raw gas from the exit.

[0003] The conventional activated carbon filter allots the entrance 102 of odor gas to the lower part of the tower body

Drawing selection

Representative draw



[Translation done.]

104, as shown in drawing 6, and it forms the exit 103 in the upper side of the tower body 104.

The cartridge 105 which accommodated activated carbon in the gas passageway of tower body 104 inside from this entrance 102 to the exit 103 so that the passage concerned might be crossed is arranged.

Such a cartridge 105 was laid on the backup flange 110 provided in the lower internal surface of the tower body 104, in order to perform receipts and payments into a tower, the inside was equipped with the cartridge taking-out ON device 107, and opening formation of the cartridge taking-out entrance which is not illustrated was carried out at the front face of the tower body 104.

[0004]In the conventional cartridge's 105 forming the penetration passage up and down with a rectangular section and laminating two or more cartridges 105, For example, the cartridge for acidity, the cartridge for alkali, the cartridge for neutrality, etc. were arranged one by one toward the upper exit 103 from the entrance 102 side. The seal of between the pars basilaris ossis occipitalis of the backup flange 110 and the cartridge 105 and each cartridge 105 is carried out, this activated carbon filter 101 is accepted by passing through the inside of the cartridge 105, and odor gas is sucked up upwards from a lower part in the inside of the tower body 104.

[0005]According to the odor component, the odor unit, the gas temperature, and the Deguchi odor unit demanded of processing air capacity and odor gas, such an activated carbon filter 101 sets up superficial velocity, and is computing the cross-section area, thickness, and pack density of an active carbon layer from these figures. The activated carbon filter 101 of the conventional cartridge-type was manufacturing the tower body 104 which defines the shape and the number of stages of the cartridge 105 based on such each original set number value, and can store these.

[0006]

[Problem(s) to be Solved by the Invention]however, access -- when the odor unit of odor gas was proved after a start that it is a thing beyond setting out, in the conventional activated carbon filter 101, the size of the tower body 104 and the specification of the deodorizing fan were defined -- a sake -- easy -- this -- it was not able to answer . Therefore, when terms and conditions were changed, it reproduced newly or the solution only had extending.

[0007]This invention can change processing air capacity, superficial velocity or treatment quality, etc. easily, also when the terms and conditions which solve an

aforementioned problem and serve as a design basis are changed. It is not necessary to reproduce a container provided with a gas inlet and a gas outlet, or to extend, and aims at providing the activated carbon filter which an installing space can also save.

[0008]

[Means for Solving the Problem] This invention is characterized by an activated carbon filter comprising the following, in order to solve an aforementioned problem.

A bottom plate which provides an opening for gas inhalation, and an opening for gas discharge for a cartridge. A suction duct which allots this opening for gas inhalation to the undersurface, establishes an opening for gas branching to a flank, and provides an opening for gas passage in the upper surface.

Gas stream entrance into a room which is opened for free passage to said opening for gas branching, and is provided in the undersurface of an activated carbon stowage.

A discharge duct which allot said opening for gas discharge to the undersurface, and an opening for raw gas passage is provided in the upper surface, and establishes an opening for raw gas unification to a flank. An inhalation chamber which a container which shall have a lid which seals the upper surface whole region, and discharges sending raw gas for gas to this cartridge is provided with a gas inlet, and is open for free passage to said opening for gas inhalation, and a discharge chamber which is provided with a gas outlet and is open for free passage to said opening for gas discharge.

[0009] A cartridge is the composition laid on a container and the seal of between a pars basilaris ossis occipitalis and a cartridge, and a lid of a backup flange provided in the container upper surface and a cartridge is carried out. Odor gas flows into a suction duct through an opening for gas inhalation of a cartridge, after being accommodated in an inhalation chamber and equalizing from a gas inlet. Odor gas which passes an opening for gas branching here is stored by gas stream entrance into a room. Adsorption treatment of the odor component is carried out passing through an active carbon layer, and raw gas used as no odor flows into a discharge duct through an opening for raw gas unification, passes an opening for gas discharge, is sent to a discharge chamber, and is exhausted from a gas outlet.

[0010] A wrap wall is unnecessary in the circumference only by a cartridge carrying a lid. For this reason, clearing work of a cartridge becomes easy. Since height in particular of a cartridge is not restricted, it becomes possible to change restoration height of activated carbon easily. If cartridge

shape is changed, change will become possible easily also to three layers of two-layer impregnated charcoal method.

[0011]A cartridge in the activated carbon filter according to claim 2, Said opening for gas inhalation of the upper row is joined to said opening for gas passage of the lower berth, and it is two or more steps of cartridges which join said opening for gas discharge of the upper row to said opening for raw gas passage of the lower berth, and said lid seals the upper surface whole region of topmost cartridge.

[0012]Odor gas which flowed into a suction duct sends the part to gas stream entrance into a room of the lower berth from an opening for gas branching, and the remaining odor gas is sent to an opening for gas inhalation of the upper row. Therefore, odor gas is simultaneously processed in a cartridge of the upper row, and a cartridge of the lower berth. All raw gas flows into a discharge duct, and is sent to a discharge chamber. In a cartridge of the highest rung, since a suction duct is closed by lid, odor gas which flowed flows into whole-quantity gas stream entrance into a room.

[0013]An adsorption rate of odor gas in an adsorption tower is governed by a cross sectional area of an active carbon layer, and inlet pressure of gas. A cross-section area of an active carbon layer can be easily fluctuated by fluctuating a cartridge number of stages, and also where processing air capacity is fixed, it can change according to treatment quality of which superficial velocity is required.

**DETAILED DESCRIPTION**

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the activated carbon filter which removes an adsorbing component out of gas by the activated carbon stored to a cartridge.

[0002]

[Description of the Prior Art] The activated carbon filter used in a human excreta treatment plant, sewage treatment equipment or a waste disposal plant, etc., Crossing arrangement of the cartridge which stored activated carbon in the middle of the gas passageway from an entrance to an exit is carried out, the odor gas which is a processing object is passed in activated carbon using a deodorizing fan, physical adsorption of the malodorous substance is carried out to activated carbon, and it deodorizes, and has composition discharged as raw gas from the exit.

[0003] The conventional activated carbon filter allots the entrance 102 of odor gas to the lower part of the tower body 104, as shown in drawing 6, and it forms the exit 103 in the upper side of the tower body 104.

The cartridge 105 which accommodated activated carbon in the gas passageway of tower body 104 inside from this entrance 102 to the exit 103 so that the passage concerned might be crossed is arranged. Such a cartridge 105 was laid on the backup flange 110 provided in the lower internal surface of the tower body 104, in order to perform receipts and payments into a tower, the inside was equipped with the cartridge taking-out ON device 107, and opening formation of the cartridge taking-out entrance which is not illustrated was carried out at the front face of the tower body 104.

[0004] In the conventional cartridge's 105 forming the penetration passage up and down with a rectangular section and laminating two or more cartridges 105, For example, the cartridge for acidity, the cartridge for alkali, the cartridge for neutrality, etc. were arranged one by one toward the upper exit 103 from the entrance 102 side. The seal of between the pars basilaris ossis occipitalis of the backup flange 110 and the cartridge 105 and each cartridge 105 is carried out, this activated carbon filter 101 is accepted by passing through the inside of the cartridge 105, and odor gas is sucked up upwards from a lower part in the inside of the tower body 104.

[0005] According to the odor component, the odor unit, the gas temperature, and the Deguchi odor unit demanded of processing air capacity and odor gas, such an activated carbon filter 101 sets up superficial velocity, and is computing the cross-section area, thickness, and pack density of an active carbon layer from these figures. The activated carbon filter 101 of the conventional cartridge-type was manufacturing the tower body 104 which defines the shape and the number of stages of the cartridge 105 based on such each original set number value, and can store these.

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[Problem(s) to be Solved by the Invention] however, access -- when the odor unit of odor gas was proved after a start that it is a thing beyond setting out, in the conventional activated carbon filter 101, the size of the tower body 104 and the specification of the deodorizing fan were defined -- a sake -- easy -- this -- it was not able to answer. Therefore, when terms and conditions were changed, it reproduced newly or the solution only had extending.

[0007] This invention can change processing air capacity, superficial velocity or treatment quality, etc. easily, also when the terms and conditions which solve an aforementioned problem and serve as a design

basis are changed. It is not necessary to reproduce a container provided with a gas inlet and a gas outlet, or to extend, and aims at providing the activated carbon filter which an installing space can also save.

[0008]

[Means for Solving the Problem] This invention is characterized by an activated carbon filter comprising the following, in order to solve an aforementioned problem.

A bottom plate which provides an opening for gas inhalation, and an opening for gas discharge for a cartridge.

A suction duct which allots this opening for gas inhalation to the undersurface, establishes an opening for gas branching to a flank, and provides an opening for gas passage in the upper surface.

Gas stream entrance into a room which is opened for free passage to said opening for gas branching, and is provided in the undersurface of an activated carbon stowage.

A discharge duct which allot said opening for gas discharge to the undersurface, and an opening for raw gas passage is provided in the upper surface, and establishes an opening for raw gas unification to a flank, An inhalation chamber which a container which shall have a lid which seals the upper surface whole region, and discharges sending raw gas for gas to this cartridge is provided with a gas inlet, and is open for free passage to said opening for gas inhalation, and a discharge chamber which is provided with a gas outlet and is open for free passage to said opening for gas discharge.

[0009] A cartridge is the composition laid on a container and the seal of between a pars basilaris ossis occipitalis and a cartridge, and a lid of a backup flange provided in the container upper surface and a cartridge is carried out. Odor gas flows into a suction duct through an opening for gas inhalation of a cartridge, after being accommodated in an inhalation chamber and equalizing from a gas inlet. Odor gas which passes an opening for gas branching here is stored by gas stream entrance into a room, Adsorption treatment of the odor component is carried out passing through an active carbon layer, and raw gas used as no odor flows into a discharge duct through an opening for raw gas unification, passes an opening for gas discharge, is sent to a discharge chamber, and is exhausted from a gas outlet.

[0010] A wrap wall is unnecessary in the circumference only by a cartridge carrying a lid. For this reason, clearing work of a cartridge becomes easy. Since height in particular of a cartridge is not restricted, it becomes possible to change restoration height of activated carbon easily. If cartridge shape is changed, change will become possible easily also to three layers of two-layer impregnated charcoal method.

[0011] A cartridge in the activated carbon filter according to claim 2, Said opening for gas inhalation of the upper row is joined to said opening for gas passage of the lower berth, and it is two or more steps of cartridges which join said opening for gas discharge of the upper row to said opening for raw gas passage of the lower berth, and said lid seals the upper surface whole region of topmost cartridge.

[0012] Odor gas which flowed into a suction duct sends the part to gas stream entrance into a room of the lower berth from an opening for gas branching, and the remaining odor gas is sent to an opening for gas passage of the upper row. Therefore, odor gas is simultaneously processed in a cartridge of the upper row, and a cartridge of the lower berth. All raw gas flows into a discharge duct, and is sent to a discharge chamber. In a cartridge of the highest rung, since a suction duct is closed by lid, odor gas which flowed flows into whole-quantity gas stream entrance into a room.

[0013] An adsorption rate of odor gas in an adsorption tower is governed by a cross sectional area of an active carbon layer, and inlet pressure of gas. A cross-section area of an active carbon layer can be easily



raw gas unification.

[0021]The odor gas saved to the suction duct 20 on the other hand goes up, is sent to the opening 16 for gas inhalation of the cartridge 5 of the upper row, advances into the gas stream entrance into a room 29 from the opening 21 for gas branching similarly, and adsorption treatment is carried out in the active carbon layer 26. Since the raw gas which flows into the discharge duct 22 is blocked by the lid 6, it descends, it is sent to the discharge chamber 9, and is discharged out of a tower from the gas outlet 3. Thus, in the activated carbon filter 1, parallel processing will be carried out corresponding to a part for the number of stages of the cartridge 5 to laminate.

[0022]Although the activated carbon filter explained in drawing 1 is an one-row two-layer thing, of course, changing into three or more layers can also change a large number into the composition of a sequence. This embodiment is shown in drawing 5. The activated carbon filter 51 of drawing 5 lays the cartridge 5 at three layers four-row on the package body 54 provided with the gas inlet 52 and the gas outlet 53, and has sealed the highest rung of each cartridge 5 by the lid 6.

[0023]The package body 54 for sequences takes disengageable composition corresponding to the cartridge 5 of each sequence, constructs the inside alcove slab 57, respectively, and the inhalation chamber 58 is formed up and it forms many discharge chambers 59 below. The barrel 60 which opens the discharge duct and the discharge chamber 59 of each cartridge 5 for free passage is formed in the inside alcove slab 57. The activated carbon filter 51 of such composition can perform the package body 54 by one row unit at the time of repair or updating.

[0024]

[Effect of the Invention]As explained above, the activated carbon filter of this invention, Since it constitutes from a cartridge which provides a suction duct, a discharge duct, and gas stream entrance into a room, a container which is open for free passage to this, and provides an inhalation chamber and a discharge chamber, and a lid which seals the upper surface whole region of a cartridge, A cartridge achieves a function only by laying on a container, and becomes unnecessary [ a wrap wall ] about the circumference of a cartridge. For this reason, the small size and simplification of a container are attained, and the clearing work of a cartridge also becomes easy. Since restriction of the height direction of a cartridge is lost, change becomes possible easily also to the cartridge of two-layer and a three-layer impregnated charcoal method also by the cartridge from which the restoration height of activated carbon differs.

[0025]Since the activated carbon filter according to claim 2 is considered as the composition which connects the suction duct and discharge duct of two or more steps of cartridges, and seals only the topmost cartridge by a lid, Odor gas can be simultaneously processed by two or more steps of cartridges, and the cross-section area of an active carbon layer can be easily fluctuated by fluctuating a cartridge number of stages. Therefore, also where processing air capacity is fixed, it can change according to the treatment quality of which superficial velocity is required. Thus, also when the terms and conditions used as a design basis are changed, it is possible to change processing air capacity, superficial velocity or treatment quality, etc. easily, it is not necessary to reproduce a container provided with a gas inlet and a gas outlet, or to extend, and an installing space can also be saved.

[Translation done.]

## EFFECT OF THE INVENTION

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[Effect of the Invention]As explained above, the activated carbon filter of this invention, Since it constitutes from a cartridge which provides a suction duct, a discharge duct, and gas stream entrance into a room, a container which is open for free passage to this, and provides an inhalation chamber and a discharge chamber, and a lid which seals the upper surface whole region of a cartridge, A cartridge achieves a function only by laying on a container, and becomes unnecessary [ a wrap wall ] about the circumference of a cartridge. For this reason, the small size and simplification of a container are attained, and the clearing work of a cartridge also becomes easy. Since restriction of the height direction of a cartridge is lost, change becomes possible easily also to the cartridge of two-layer and a three-layer impregnated charcoal method also by the cartridge from which the restoration height of activated carbon differs.

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[Translation done.]

## MEANS

[Means for Solving the Problem] This invention is characterized by an activated carbon filter comprising the following, in order to solve an aforementioned problem.

A bottom plate which provides an opening for gas inhalation, and an opening for gas discharge for a cartridge.

A suction duct which allots this opening for gas inhalation to the undersurface, establishes an opening for gas branching to a flank, and provides an opening for gas passage in the upper surface.

Gas stream entrance into a room which is opened for free passage to said opening for gas branching, and is provided in the undersurface of an activated carbon stowage.

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[0011] A cartridge in the activated carbon filter according to claim 2, Said opening for gas inhalation of the upper row is joined to said opening for gas passage of the lower berth, and it is two or more steps of cartridges which join said opening for gas discharge of the upper row to said opening for raw gas passage of the lower berth, and said lid seals the upper surface whole region of topmost cartridge.

[0012] Odor gas which flowed into a suction duct sends the part to gas stream entrance into a room of the lower berth from an opening for gas branching, and the remaining odor gas is sent to an opening for gas inhalation of the upper row. Therefore, odor gas is simultaneously processed in a cartridge of the upper row, and a cartridge of the lower berth. All raw gas flows into a discharge duct, and is sent to a discharge chamber. In a cartridge of the highest rung, since a suction duct is closed by lid, odor gas which flowed flows into whole-quantity gas stream entrance into a room.

[0013] An adsorption rate of odor gas in an adsorption tower is governed by a cross sectional area of an active carbon layer, and inlet pressure of gas. A cross-section area of an active carbon layer can be easily fluctuated by fluctuating a cartridge number of stages, and also where processing air capacity is fixed, it

can change according to treatment quality of which superficial velocity is required.

[0014]

[Embodiment of the Invention]Next, this embodiment of the invention is described in detail based on an accompanying drawing. The sectional view in which structural drawing and drawing 2 which drawing 1 shows the outline composition of an activated carbon filter show the top view of a cartridge, and drawing 3 shows the III-III section of drawing 2, and drawing 4 are the enlarged drawings which omitted a part of a section of drawing 3. The activated carbon filter 1 lays two or more steps of cartridges 5 on the package body 4 provided with the gas inlet 2 and the gas outlet 3, and covers the highest rung by the lid 6.

[0015]The package body 4 sets up the septum 7, and the inhalation chamber 8 is formed in the gas inlet 2 side, and it forms the discharge chamber 9 in the gas outlet 3 side, respectively. The backup flange 10 is protruded on the upper surface of the package body 4, the packing material 11 is intervened, and the cartridge 5 is upper-\*(ed). As for the upper surface of the inhalation chamber 8 and the discharge chamber 9, the openings 12 and 13 are established, respectively.

[0016]The cartridge 5 is the shape of a flat-surface rectangle, and attaches the upper flange 14a and the lower flange 14b around the both ends of the side plate 14, respectively. The bottom plate 15 is installed in the lower flange 14b, and an opening is provided in the corner of the position used as point symmetry, and use one side as the opening 16 for gas inhalation, and let another side be the opening 17 for gas discharge. In the opening 16 for gas inhalation, it falls in the edge upper part of the bottom plate 15, the wall 18 is established, and the bridge wall 19 is set up in the edge of the bottom plate 15 of the opening 17 for gas discharge.

[0017]The space which falls and is surrounded with the wall 18 and the side plates 14 and 14 of two sheets constitutes the suction duct 20, it falls and the opening 21 for gas branching is formed between the wall 18 and bottom plate 15 edge. The space surrounded with the bridge wall 19 and the side plates 14 and 14 of two sheets on the other hand constitutes the discharge duct 22, sets up bridge wall 19 upper bed lower than the side plate 14, and forms the opening 23 for raw gas passage.

[0018]The activated carbon 26 is prevented from falling in cartridge 5 inside, and the shot 24 for net support being constructed in the height of the lower end of the wall 18, sticking the network 25 on the upper surface, and being omitted. It fills up with the activated carbon 26 to the lower part of the opening 23 for raw gas passage.

[0019]It falls with the upper flange 14a, the packing material 11 is stuck on the upper surface of the wall 18, the hanger 27 adheres inside an upper surface corner, and, outside, the stopper 28 protrudes. The airtightness of each cartridge 5 accumulated on many vertical stages by operation of this packing material 11 and the stopper 28 is maintained, and a series of adsorption towers are formed. The space across which it faced by the bottom plate 15 and the shot 24 for net support constitutes the gas stream entrance into a room 29 of the cartridge 5 concerned.

[0020]As shown in the arrow of drawing 1, if odor gas is accommodated in the inhalation chamber 8 from the gas inlet 2, it will serve as a uniform pressure, will pass the opening 12 and the opening 16 for gas inhalation, and will flow into the suction duct 20 of the cartridge 5 of the lower berth. A part of odor gas which passes the opening 21 for gas branching here advances into the gas stream entrance into a room 29, adsorption treatment of the odor component is carried out, passing through the active carbon layer 26, and the raw gas used as no odor flows into the discharge duct 22 through the opening 23 for raw gas unification.

[0021]The odor gas saved to the suction duct 20 on the other hand goes up, is sent to the opening 16 for gas inhalation of the cartridge 5 of the upper row, advances into the gas stream entrance into a room 29 from the opening 21 for gas branching similarly, and adsorption treatment is carried out in the active carbon layer 26. Since the raw gas which flows into the discharge duct 22 is blocked by the lid 6, it descends, it is sent to the discharge chamber 9, and is discharged out of a tower from the gas outlet 3. Thus, in the activated carbon filter 1, parallel processing will be carried out corresponding to a part for the number of stages of the cartridge 5 to laminate.

[0022]Although the activated carbon filter explained in drawing 1 is an one-row two-layer thing, of course, changing into three or more layers can also change a large number into the composition of a sequence. This embodiment is shown in drawing 5. The activated carbon filter 51 of drawing 5 lays the cartridge 5 at three layers four-row on the package body 54 provided with the gas inlet 52 and the gas outlet 53, and has sealed the highest rung of each cartridge 5 by the lid 6.

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[Translation done.]

## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is structural drawing showing the outline composition of an activated carbon filter.

[Drawing 2] It is a top view of a cartridge.

[Drawing 3] It is a sectional view showing the III-III section of drawing 2.

[Drawing 4] It is the enlarged drawing which omitted a part of a section of drawing 3.

[Drawing 5] It is structural drawing showing the outline composition of the activated carbon filter of other embodiments.

[Drawing 6] It is structural drawing showing the outline composition of the conventional activated carbon filter.

[Description of Notations]

1 Activated carbon filter

2 Gas inlet

3 Gas outlet

4 Package body

5 Cartridge

6 Lid

8 Inhalation chamber

9 Discharge chamber

15 Bottom plate

16 The opening for gas inhalation

17 The opening for gas discharge

20 Suction duct

21 The opening for gas branching

22 Discharge duct

23 The opening for raw gas passage

26 Activated carbon

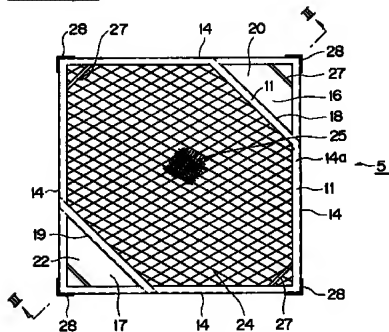
29 Gas stream entrance into a room

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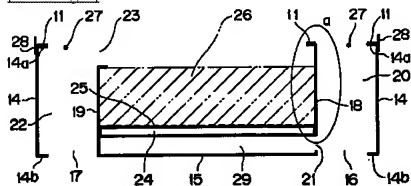
[Translation done.]

# DRAWINGS

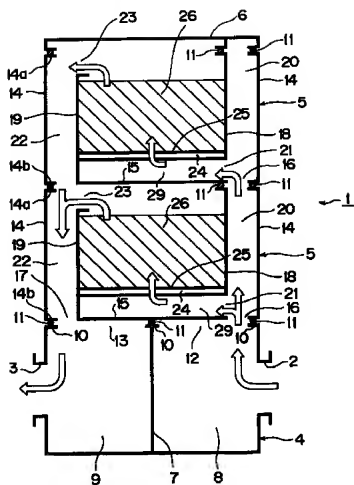
[Drawing 2]



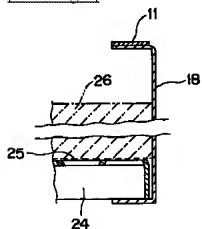
[Drawing 3]



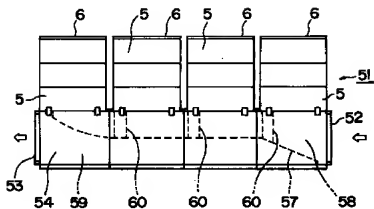
[Drawing 1]



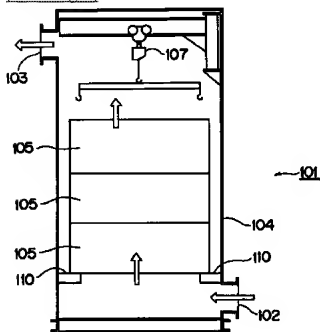
[Drawing 4]



[Drawing 5]



[Drawing 6]



[Translation done.]